22ND ARMY SCIENCE CONFERENCE FEATURES R&D ACHIEVEMENT AWARDS AND BEST PAPERS AWARDS

Pearl Gendason

Introduction

More than 450 people from government, industry, and academia attended the 22nd Army Science Conference (ASC), Dec. 11-13, 2000, in Baltimore, MD. Opening remarks were presented by then Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT) Paul J. Hoeper, who was also the conference sponsor, and Secretary of the Army Louis Caldera. The conference focused on what science and technology (S&T) can do for the soldier of the future. Since 1957, this biennial event has served as a forum for the discussion and recognition of significant accomplishments that are considered highly beneficial to the Army's mission.

Program Theme

This year's conference theme was "Accelerating the Pace of the Transformation to the Objective Force." The agenda was developed by the Executive Steering Committee, chaired by Dr. Walter F. Morrison Jr., Director for Research and Laboratory Management, Office of the ASAALT (OASAALT), and the Technical Program Committee (TPC), chaired by Dr. Walter Bryzik, U.S. Army Tank-automotive and Armaments Command. The TPC selected 50 technical papers and 84 poster papers that presented the technical work being done for the soldier of the future.

Keynote addresses delivered by Dr. Hans Mark, Director of Defense Research and Engineering, and MG Robert Scales (USA, Ret.) challenged the audience to think about the future from a fresh perspective. This set the stage for a panel discussion on "The Role of Technology in the Transformation to the Objective Force." Panelists included Edwin Mazzanti, U.S. Army Training and Doctrine Command; Dr. A. Michael Andrews II, Deputy Assistant Secretary of the Army for Research and Technology, OASAALT; Dr. Jane Alexander, Defense Advanced Research Projects Agency; and Dr. William Forster, Chairman of the Board on Army Science and Technology.

R&D Achievement Awards

One of the conference highlights was presentation of Army Research and Development (R&D) Achievement Awards for accomplishments during 2000. LTG Paul J. Kern, Military Deputy to the ASAALT, presented the awards to 52 Department of the Army researchers. These awards recognize scientific or engineering achievements that materially improve the Army's technical capability, contribute to the national welfare, and acknowledge scientific or engineering leadership that significantly advances the state of a technology. Each major Army command annually nominates personnel who have conducted innovative and outstanding R&D efforts. Both individuals and small groups are eligible for consideration. The evaluation panel is chaired by the Director for Research and Laboratory Management, OASAALT, and consists of leading experts in the Army S&T community. Listed by the major Army command and activity where they are employed, the recipients of Army R&D Achievement Awards are as follows:

U.S. ARMY MATERIEL COMMAND

U.S. Army Research Laboratory (ARL)
Dale R. Shires
Dr. Andrew Mark
Dr. Shawn M. Walsh
Dr. Ray Yin
Dr. James M. Sands
Dr. Bruce K. Fink
Dr. Steven H. McKnight
John A. Escarsega
Kestutis G. Chesonis
Dr. Dawn M. Crawford
Dr. Jeffrey L. Duncan

U.S. Army Edgewood Chemical Biological Center (ECBC)
Dr. H. Dupont Durst
Dr. Richard R. Smardzewski
David W. Sickenberger
Felix L. Reyes
J. Michael Cress
Karen L. Vado

Bruce W. Jezek
Patrick L. Berry

U.S. Army Communications-Electronics Command Research, Development and Engineering Center (CERDEC)
Steven R. Goodall

U.S. Army Armament Research, Development and Engineering Center (ARDEC)
Dr. Ernest L. Baker
Arthur S. Daniels
Joseph Orosz
Dr. Sury Iyer
Nathaniel Gelber
Dr. C. Rao Surapaneni
Dr. Paul Cote
Dr. Gay Kendall
Mark Todaro
Edward J. Hyland
Richard W. Tortorici
Edward Troiano

U.S. Army Natick Soldier Center
Dr. Carolyn K. Bensel
Dr. Lynne A. Samuelson

U.S. Army Aviation and Missile Research, Development and Engineering Center (AMRDEC)
Jon C. Shuck
Roswell Nourse
James C. Kirsch
Alfred M. Wright
William D. Washington
Milton E. Vaughn
Elizabeth Collier
Thomas H. Maier
Robert J. Shively

U.S. ARMY MEDICAL COMMAND

U.S. Army Medical Research Institute for Chemical Defense (AMRICD)
CPT Stephen T. Hobson

U.S. ARMY CORPS OF ENGINEERS

U.S. Army Engineer Research and Development Center
Dr. David Horner
Wendell Gray

LTG Paul J. Kern presents a silver medallion and certificate to Dr. Charles M. Bowden, winner of the 2000 Paul A. Siple Memorial Award. Dr. A. Michael Andrews (third from left) and Dr. Walter F. Morrison Jr. participated in the award ceremony.

Jody Priddy
Michael E. George
William M. Hossley
Pamela G. Kinnebrew
Dr. Stephen W. Maloney
Dr. Neal E. Adrian

Best Papers Awards

The 22nd ASC culminated with the Best Papers Awards Luncheon, which honored the authors of those technical papers representing the best in Army research. Hosted by LTG Kern, the luncheon featured a keynote address by Dr. Neil Gershenfeld, Massachusetts Institute of Technology Media Lab, on "Things That Think." The following 17 papers, which were selected for honorable mention, earned the authors certificates of achievement and a $500 cash award:

"Novel Elastomeric Membrane for Soldier Protective Clothing" by Dr. Dawn M. Crawford, ARL; and co-authored by Dr. James M. Sloan, Dr. Nora C. Beck Tan, and Gene Napadensky, ARL; and Quoc Truong of the U.S. Army Natick Soldier Center.

"The Elimination of Hazardous Chemicals in the Preparation of High Performance Transparent Armor for Soldier Protection" by Dr. Douglas J. Kiserow, ARL; and co-authored by Dr. George W. Roberts, North Carolina State University; and Drs. Stephen M. Gross and Joseph M. DeSimone, University of North Carolina.

"Development of Advanced Interband Cascade Lasers for IRCM Applications" by Dr. John L. Bradshaw, ARL; and co-authored by Dr. John D. Bruno and John T. Pham, ARL; and Drs. Donald E. Wortman and Rui Q. Yang, Maxion Technologies Inc.

"Force Detected Magnetic Resonance of CaF_2 and GaAs" by Dr. Kent Thurber, ARL; and co-authored by Drs. Doran D. Smith and John A. Marohn, ARL; Dr. Lee Harrell, U.S. Military Academy (USMA); and Dr. Raul Fainchtein, Johns Hopkins University.

"Formulation of a Free Jet Shear Layer Ignition Model for Application to Direct Injection Diesel Engines" by Dr. Peter Schihl, ARDEC; and co-authored by Dr. Walter Bryzik and John Tasdemiroglu, ARDEC.

"Rarefaction Wave Gun Propulsion" by Dr. Eric Kathe, ARDEC; and co-authored by Dr. Robert Dillon, Dr. Sam Sopok, and Mark Witherell, Benét Laboratories; and Stewart Dunn and Douglas Coats, Software Engineering Associates Inc.

"Control of Nerve Agent-Induced Seizures Is Critical for Neuroprotection and Survival" by Dr. Tsung-Ming A. Shih, AMRICD; and co-authored by Drs. Steven M. Duniho and John H. McDonough, AMRICD.

"Mission Rehearsal in Virtual Places" by Dr. Bob G. Witmer, U.S. Army Research Institute for the Behavioral and Social Sciences; and co-authored by Dr. Wallace J. Sadowski, University of Central Florida; and Dr. Neal M. Finkelstein, U.S. Army Simulation, Training, and Instrumentation Command.

"Isolation of an RDX-Degrading Acetogenic Bacterium from a Mixed Culture that Degrades TNT, RDX, and

Some of the Army R&D Achievement Awards recipients are shown with LTG Paul J. Kern (back row far left), Dr. A. Michael Andrews (back row second from left), and Dr. Walter F. Morrison Jr. (back row far right).

HMX Under Anaerobic Conditions" by Dr. Neal R. Adrian and co-authored by Clint M. Arnett, U.S. Army Engineer R&D Center.

"Broad Bandwidth Lidar for Standoff Bioaersol Size Distribution Determination" by Dr. James B. Gillespie, ARL; and co-authored by Drs. David L. Ligon, Paul M. Pellegrino, and Nicholas F. Fell Jr., ARL.

"Degradation of Components of Mustard Agent Filled Assembled Chemical Weapons in Laboratory and Pilot Scale Immobilized Cell Bioreactors" by Mark A. Guelta, ECBC; and co-authored by Dr. Joseph J. DeFrank and Nancy A. Chester, ECBC; and Dr. Steven Lupton and Mark Koch, Honeywell International.

"Navier-Stokes Computations of Finned Missiles at Supersonic Speeds" by Dr. David J. Haroldsen, USMA, and co-authored by Dr. Walter B. Sturek Sr., ARL.

"Coupled Macro-Micro Nonlinear Transient Asymptotic Expansion Homogenization Method on Scalable Computers for Heterogeneous Structures" by Dr. Raju R. Namburu, ARL, and co-authored by Drs. Peter W. Chung and Rama R. Valisetty, ARL.

"From Theoretical Equations to Practical Army Applications: The High Performance of Polymer Electrolyte Membrane Fuel Cells for Individual Soldier and Future Combat System Applications" by Dr. Deryn Chu, ARL; and co-authored by Dr. Rongzhong Jiang and Charles Walker, ARL; and Kris Gardner, Richard Jacobs, and James Stephens, CERDEC.

"Human Performance Issues in Battlefield Visualization" by Michael J. Barnes, ARL; and co-authored by Dr. Linda G. Pierce, ARL; Dr. Christopher D. Wickens, University of Illinois; Dr. Mary T. Dzindolet, Cameron University; and Dr. Jerzy W. Rozenblit, University of Arizona.

"Dual-Band FLIR ATR - Status and Value to FCS" by Dr. Lipchen Alex Chan, ARL, and co-authored by Drs. Nasser M. Nasrabadi and Sandor Z. Der, ARL.

"Using Magnetic Sensors in the Battlefield as Unattended Ground Sensors" by Dr. Alan S. Edelstein, ARL, and co-authored by Jonathon E. Fine, David M. Hull, Dr. L. D. Flippen Jr., Dr. N. Gokemeijer, and Dr. Greg A. Fischer, ARL.

Scientific peers judged three papers as representative of the Army's highest quality research. Authors of two of these papers received bronze medallions and certificates of achievement and will share a $1,000 cash award. The authors of the paper judged to be the overall best in Army research received the Paul A. Siple Memorial Award, silver medallions, and shared a cash award of $2,500.

The first bronze medallion was awarded to Dr. Donald T. Resio, U.S. Army Engineer R&D Center, for "The Development of a Rapidly Installed Breakwater for Force Projection." Co-authors are Drs. Jimmy E. Fowler and Jeffrey A. Melby, U.S. Army Engineer R&D Center.

The second bronze medallion was awarded to Dr. Kevin P. O'Connell, ECBC, for "Recombinant Antibodies for the Detection of Bacteriophage MS2 and Ovalbumin." Co-authors are Drs. Peter A. Emanuel, Akbar S. Khan, and James J. Valdes, ECBC; Drs. Timothy J. Stinchcombe and Robert Shopes, Tera Biotechnology Corp.; and Drs. Maha Khalil and Mohyee E. Eldefrawi, University of Maryland.

The winner of the 2000 Paul A. Siple Memorial Award was Dr. Charles M. Bowden, AMRDEC, for "Long-Range Propagation of Intense Ultra-Short Laser Pulses in Air." The co-author is Dr. Neset Akozbek, AMRDEC.

Conclusion

The 22nd Army Science Conference was a tremendous success as a result of the dedicated effort put forth by the planners, presenters, and session chairs; HQ AMC (the military host); and the substantive support provided by ARL.

PEARL GENDASON was the Conference Manager for the 22nd Army Science Conference. She is a Physical Scientist in the Office of the Director, ARL. She has a B.S. degree in chemistry from Temple University and an M.B.A. from the University of Baltimore.
